

REMARKS

Claims 36-42 are pending in this application. Claims 43-53 have been canceled without prejudice or disclaimer for purposes of expedition.

The drawings filed on 8/6/99 remain objected under 37 C.F.R. §1.84 by the Draftsperson because the top and right margins of FIGs. 1, 20 and 21 and the copy machine marks of FIGs. 1-23 are not accepted, see Form PTO-948. Formal drawings with corrections will be submitted upon the conclusion of the instant application.

Claims 43-46 have been rejected under 35 U.S.C. §102(e) as being anticipated by Lin et al. U.S. Patent No. 5,590,321 (Lin '321) for reasons stated on pages 6-7 of the Office action. While Applicants believe that Lin '321 fails to disclose Applicants' claimed "ADT data including a plurality of attribute values" and "location information which indicates location of said ADT data in said database server," claims 43-46 have been canceled for purposes of expedition as previously indicated to render the rejection moot.

Dependent claims 47-48 have also been rejected under 35 U.S.C. §103(a) as being unpatentable over Lin et al., U.S. Patent No. 5,590,321 as applied to claim 44 above, and further in view of Lomet, U.S. Patent No. 5,806,065. Again, claims 47-48 have been canceled without prejudice or disclaimer for purposes of expedition to render the rejection moot.

Claims 49-53 have been rejected under 35 U.S.C. §102(e) as being anticipated by Carino, U.S. Patent No. 5,754,841. Again for purposes of expedition, claims 49-53 have been canceled without prejudice or disclaimer to render the rejection moot.

The only rejection outstanding in the instant application is the rejection of claims 36-42 under 35 U.S.C. §102(b) as being anticipated by the newly cited prior art reference, Gerull et al.,

U.S. Patent No. 5,426,780. Applicants respectfully submit that the features of claims 36-42 are not taught or disclosed by Gerull '780. Therefore, Applicants respectfully request the Examiner to reconsider and withdraw this rejection for the following reasons.

Independent claim 36, for example, defines a data processing method in a database system as shown in FIG. 1 which comprises: storing abstract data type (ADT) data including a plurality of attribute values in a database server; referring to said database server and holding location information which indicates the location of said ADT data stored in said database server, when retrieving said ADT data; and reading said attribute values using said location information and operating said attribute values, when operating said attribute values contained in said ADT data located by said location information. The ADT data retrieved is constituted by a plurality of partial data, and each said partial data is defined by an attribute value including a name and data type declaration, see FIG. 2.

In contrast to Applicants' claimed invention, Gerull '780 discloses a system and method for geographic information. The system is intended to treat linear-feature location for geographical positions (such as start position and end position on the road, etc.) and those attributes (such as the number of lanes, the average traffic density, etc.) related to the geographical location called "distributed attributes". The query is executed after converting locations and attributes stored as the columns of the table in relational database, into object-oriented form. Using object-oriented form which can express the locations as variable-length abstract data type for each attribute, the query about location (such as position, segment or area, etc.) on condition about attributes is proceeded efficiently by intersecting of the locations. In

relational database, the query about location is not processed efficiently, because of being expressed the geographical information as the columns of attributes for each locations.

The differences between the geographic information system of Gerull '780 and Applicants' claims 36-42 are discussed in detail hereinbelow:

First of all, Applicants' claimed invention is directed to a data processing method in a database system which uses a database server, see the preamble of claims 36-42.

In contrast to Applicants' claimed "database server", Gerull '780 describes a system for performing dynamic segmentation analysis of attributes of a linear network, such attributes stored in a computer-readable relational database, see claim 1, col. 12, lines 36-38.

Secondly, Applicants' claims 36-42 also require "storing abstract data type (ADT) data including a plurality of attribute values in the database server."

In contrast to Applicants' claimed "ADT data", Gerull '780 discloses a retrieving method for retrieving only linear-feature data which is a fixed-length data of columns (such as position on the road in geographic information). An example of such linear-feature data as database records is described on column 1, line 62 extending to column 2, line 16 as follows:

Column					
<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>
US0123	0.0	9.4	2	12	1954
US0123	9.4	12.4	2	12	1962
US0123	12.4	17.3	2	12	1962
USO123	17.3	21.5	2	12	1962
USO123	21.5	36.4	4	11	1971

Where:

column 1 = highway name

column 2 = begin location for record

column 3 = end location for record
column 4 = number of lanes
column 5 = lane width
column 6 = year repaved.

According to column 3, lines 41 and 61-64 of Gerull '780, the linear-feature data of columns is first converted into object-oriented form which then takes advantage of the use of "abstract data types" available with the object model. The object-oriented database may then be queried to return to regions, specified in region coordinates in each of the variable length location arrays corresponding to the selected attribute values. However, the data retrieved by Gerull '780 is the fixed-length data of columns and does NOT correspond to Applicants' claimed "ADT data" in relational database. Reference to ADT data is only made to object-oriented database after the fixed-length data of columns is converted. In object-oriented database, Gerull '780 describes extracting (geographical) locations (such as "the regions, specified in region coordinates, in each of the variable length location arrays") which are ones of attribute values of ADT on condition about "distributed attributes". Therefore, the data contents of Gerull '780 are different from the data contents of Applicants' claimed invention which retrieve attributes values of ADT using the location information of ADT data (such as "location information which indicates the location of said ADT data").

Thirdly, Applicants' claims 36-42 further require "referring to said database server and holding location information which indicates the location of said ADT data stored in said database server, when retrieving said ADT data."

In contrast to Applicants' reference to "database server" and "location information which indicates the location of said ADT data", Gerull '780 only describes the use of geographic

information which indicates geographical features that change as a function of location. For example, with respect to such a feature as road, the number of lanes, the width of the roadbed, the quality of the pavement, the speed limit, the average traffic density are all attributes that change with respect to position on the road. (See col. 1, lines 14-22 of Gerull '780).

Therefore, whereas the "location information" of Applicants' claimed invention defines the location of said ADT data stored in said database server such as "an address of the data", the "location information" as described in Gerull '780 refers to the geographical location such as "position on the road".

Lastly, Applicants' claims 36-42 also require "reading said attribute values using said location information and operating said attribute values, when operating said attribute values contained in said ADT data located by said location information."

In contrast to Applicants' claimed "reading" and "operating" said attribute values using said location information, Gerull '780 discloses attributes (such as lane width or pipe diameter) that are subject to change along the length of a feature (such as a road or a pipe) and known as "distributed attributes" expressed on the relational database as the fixed-length data, see column 1, lines 25-28. The word "attributes" in Gerull's invention refer to the attributes such as "lane width" related to the geographical location such as "position on the road", called "distributed attributes". This type of "distributed attributes" does NOT correspond to attributes of Applicants' claimed "ADT".

Nevertheless, in support of the rejection of independent claim 36, the Examiner cites the Abstract, col. 3, lines 60-64, col. 4, lines 1-4, and FIG. 1 of Gerull '780 for disclosing Applicants' claimed "storing abstract data type (ADT) data including a plurality of attribute

values in database server.” See page 3 of Office Action (Paper No. 10). As previously indicated, the cited portion of Gerull ‘780 is misplaced. The Abstract, col. 3, lines 60-64, col. 4, lines 1-4, and FIG. 1 of Gerull ‘780 simply refer to retrieving linear-feature data which is a fixed-length data of columns stored in a computer-readable relational database.

However, the Examiner has broadly interpreted the Gerull’s Abstract data type as described on col. 3, lines 60-64 as Applicants’ claimed “ADT data”. This interpretation is incorrect because the geographical information system of Gerull ‘780 as described on col. 6, lines 43-67 is used for locating the distributed attributes and also given an example of typically database record as described on col. 6, line 65 where attribute feature ID and reference marker ID is detailed. Dynamic segmentation is then used for set of linear features which satisfy the conditions of a query, these linear features are segmented at respective locations.

The Examiner also cites col. 6, lines 43-67, col. 7, lines 43-46, lines 47-58 of Gerull ‘780 for disclosing Applicants’ claimed “referring to said database server and holding location information which indicates the location of said ADT data stored in said database server, when retrieving said ADT data.” As previously explained, Gerull ‘780 describes only geographical location but **no** location information which indicates the location of said ADT data stored in said database server. In addition, the Examiner has also broadly interpreted the Gerull geographical information system used for locating the distributed attributes as Applicants’ claimed “referring to said database server and holding location information which indicates the location of said ADT data stored in said database server.” However, the Examiner has ignored the conditional limitation of “when retrieving said ADT data” as expressly defined in the same claim 36.

According to Gerull '780, retrieving ADT data is executed in object-oriented database which then retrieves geographical locations information or "distributed attribute" related to the locations.

If geographical location information is interpreted by the Examiner as Applicants' claimed "ADT data", then the sentence "referring to said database server and holding location information which indicates the location of said ADT data stored in said database" must also be interpreted for purposes of consistency as "referring to said database server and holding location information which indicates the location of geographical location information stored in said database". However, as explained previously, Gerull '780 describes nothing about the location (such as "an address of the data") of geographical location information stored in said database.

Likewise, if "distributed attribute" is interpreted as ADT data in the sentence "when retrieving said ADT data", then the sentence "referring to said database server and holding location information which indicates the location of said ADT data stored in said database" must also be interpreted as "referring to said database server and holding location information which indicates the location of distributed attribute stored in said database." However, in object-oriented database, retrieving of distributed attribute does NOT use geographical location information, because the object data is made for each "distributed attribute". Even if there is geographical location information in condition of query, the object to be held will be distributed attribute itself, not location information.

In either situation, the contents of Gerull's invention does NOT correspond to Applicants' claimed "referring to said database server and holding location information which indicates the location of said ADT data stored in said database when retrieving said ADT data" as expressly defined in independent claim 36.

Next, the Examiner also cites col. 8, lines 9-11 of Gerull '780 for disclosing Applicants' claimed "reading said attribute values using said location information and operating said attribute values". Again, the citation is misplaced. Col. 8, lines 9-21 of Gerull '780 discloses, for example, loading and controlling of graphical data including linear features with attributes, also abstract class contains an attribute identifier such as described on col. 8, line 19-20, attribute data will be read from the attribute table as described on col. 8, lines 24-25.

In addition, the Examiner again ignores the conditional limitation of "when operating said attribute values contained in said ADT data located by said location information." The cited col. 8, lines 9-21 of Gerull '780 refers to converting the data in relational database into object-oriented form. The object-oriented data model is then made using fixed-length data of columns in relational database and the design files about geographical location, distributed attribute and so on. ADT data is made after operating as converting to or making the object model. Therefore, the data to be operated does NOT correspond to Applicants' claimed "said attribute values contained in said ADT data" as expressly defined in independent claim 36.

The rule under 35 U.S.C. §102 is well settled that anticipation requires that each and every element of the claimed invention be disclosed in a single prior art reference. *In re Paulsen*, 30 F.3d 1475, 31 USPQ2d 1671 (Fed. Cir. 1994); *In re Spada*, 911 F.2d 705, 15 USPQ2d 1655 (Fed. Cir. 1990). Those elements must either be inherent or disclosed expressly and must be arranged as in the claim. *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 9 USPQ2d 1913 (Fed. Cir. 1989); *Constant v. Advanced Micro-Devices, Inc.*, 848 F.2d 1560, 7 USPQ2d 1057 (Fed. Cir. 1988); *Verdegall Bros., Inc. v. Union Oil Co.*, 814 F.2d 628, 2 USPQ2d 1051 (Fed. Cir. 1987). The corollary of that rule is that absence from the reference of any claimed element

negates anticipation. *Kloster Speedsteel AB v. Crucible Inc.*, 793 F.2d 1565, 230 USPQ2d 81 (Fed. Cir. 1986).

In the present situation, Gerull '780 fails to disclose basically all limitations of Applicants' independent claim 36 and its respective dependent claims 37-42. Therefore, Applicants respectfully request that the rejection of independent claim 36 and its respective dependent claims 37-42 be withdrawn.

Entry of the foregoing amendments is proper under 37 C.F.R. §1.116(b) because those amendments simply respond to the issues raised in the final rejection, no new issues are raised, no further search is required, and the foregoing amendments are believed to remove the basis of the outstanding rejections and to place all claims in condition for allowance.

In view of the foregoing amendments, arguments and remarks, all claims are deemed to be allowable and this application is believed to be in condition to be passed to issue. Should any questions remain unresolved, the Examiner is requested to telephone Applicants' attorney at the Washington DC area office at (703) 312-6600.

No fees have been incurred. Please charge any shortage in the fees due in connection with the filing of this paper, to Deposit Account No. 01-2135, and please credit any excess fees to such deposit account.

Respectfully submitted,

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